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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/878,870	06/08/2001	George M. Zimmer	260006.442	2647

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EXAMINER

PAIK, SANG YEOP

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 08/22/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/878,870

Applicant(s)

ZIMMER ET AL.

Examiner

Sang Y Paik

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21,35-58 and 64-71 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21,35-49,54-56 and 64-71 is/are rejected.
- 7) ☒ Claim(s) 50-53,57 and 58 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7-13, 15-19, 21, 35-38, 40-45, 47-49, 54, 64-66 and 68-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over David (EP 1 139 007) in view of Tanaka et al (US 5,005,370).

David discloses the vaporizer claimed including a heat exchanger, a source of liquefied gas, a capacity control valve having a valve/flow regulator, a movable diaphragm/pressure sensor dividing a thermal expansion fluid chamber and a gas inlet chamber, a valve inlet and a valve outlet. David shows a pressure sensor to measure the pressure of the gas vapor from the heat exchanger to control the capacity control valve and the gas source, but David does not show a temperature sensing element to control the capacity control valve to control the gas source.

Tanaka et al show a temperature sensor in the formed of a bulb connected with an expansion fluid to control a control valve including the diaphragm in the expansion fluid chamber to adjust the fluid flow in the control valve, and an auxiliary pressure device having a coil spring which biases the pressure of the valve control. In view of Tanaka et al, it would have been obvious to one of ordinary skill in the art to adapt David with the temperature sensor in place of the pressure sensor to measure the parameters of vaporized gas to further control the liquefied gas source to achieve the desired conditions of the vaporized gas.

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With respect to claims 4, 12, 69 and 70, it would have been obvious to one of ordinary skill in the art to use an expansion fluid having similar saturation properties of the liquefied gas or any other type of fluids since the choice of such fluids would have been dependent upon its expansion characteristics that meet the user's desired expansion of such fluid.

With respect to claim 35, while David shows a single vaporizer, it would have obvious to one of ordinary skill in the art to use one or a plural vaporizers which depends on how much one wishes to produce such vaporization within the given time and applications. If one were to produce a large quantity of such vaporization within a given time, one would be motivated to prepare multiple vaporizers to meet such demand.

3. Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over David in view of Tanaka et al as applied to claims 1-5, 7-13, 15-19, 21, 35-38, 40-45, 47-49, 54, 64-66 and 68-71 above, and further in view of Jurcik et al (US 6,076,359) or Fortney (US 3,250,723).

David in view of Tanaka et al shows the structure claimed except the claimed heat exchanger having a mass of thermally conductive material with a tube embedded therein.

Jurcik et al show a heat exchanger in Figure 14A having a mass of thermally conductive material embedded therein with a gas piping and fittings. Jurcik et al further shows that strip heaters can be attached to the heating block (see column 11, line 51- column 12, line 13). Fortney also show a heat exchanger block having a thermally conductive material such as a heater with a tube embedded therein.

In view of Jurcik et al or Fortney, it would have been obvious to one of ordinary skill in the art to adapt David, as modified by Tanaka, with the claimed heat exchanger structure to enhance and improve the heating thermal capacity of the heat exchanger.

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4. Claims 6, 14, 20, 39, 46, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over David in view of Tanaka et al as applied claims 1-5, 7-13, 15-19, 21, 35-38, 40-45, 47-49, 64-66 and 68-71 above, and further in view of Barbulesco (US 2,856,759) or Nielsen (US 4,032,070).

David in view of Tanaka et al discloses the structure and method claimed except an adjustment member to adjustably select the biasing pressure.

Barbulesco or Nielsen shows an adjustment member that can adjustably select the biasing pressure. In view of Barbulesco or Nielsen, it would have been obvious to one of ordinary skill in the art to adapt David, as modified by Tanaka et al, with an adjustment member to adjust the coil spring member to meet the desired flow rate of the vaporization of the gas fluid.

***Allowable Subject Matter***

5. Claims 50-53, 57 and 58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

6. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 703-308-1147. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

S. Paik

Sang Y Paik  
Primary Examiner  
Art Unit 3742

syp